

ABSTRACT OF THE DISCLOSURE

- A method of producing chlorine dioxide (ClO_2) is described which employs Urea as a reducing agent to reduce alkaline chlorate (NaClO_3 or KClO_3) in a mineral acid medium. The method of the invention can, for example, by means of a very high transfer rate, be used to
- 5 reduce over 90% of the reactant, alkaline chlorate, to the product, chlorine dioxide.
- Furthermore, ClO_2 product purity is accomplished, for example, over 95%. The mother solution of the reaction can then be processed, for example, to produce other useful inorganic salts, including potassium sulfate, potassium nitrate, sodium nitrate, and the like, and/or compound fertilizer resulting in useful chemical products rather than toxic waste.
- 10 Accordingly, the method of the invention provides for efficient, cost effective, and safe production of ClO_2 as well as inorganic salts and/or compound fertilizer.